

Notice of Allowability

Application No.

09/681,732

Examiner

Thomas H. Stevens

Applicant(s)

STEWART ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 11/18/2005.
2. ☒ The allowed claim(s) is/are 4,5,8-15 and 18-20.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date <u>2/9/2006</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

DETAILED ACTION

1. Claims 1-20 were initially examined.
2. Claims 1-3,6-7,16 and 17 were cancelled.

Section I: Appeal Brief

3. In view of the appeal brief filed on 11/18/2005, applicants' arguments were considered persuasive to withdraw the art rejection thus negating the examiner's answer.

The results of an updated search produced a citation, authored by one of the applicants, to which the title reflected some of the limitations relevant to the scope of the case: (i.e., P.J. Stewart "Direct Shape Control of Free-Form Curves and Surfaces with Generalized Basis Functions" PhD Dissertation, 1991). The Office requested and received the full text of the prior art. After examination of the P.J Stewart document, the search produced little evidence for any prima facie argument to substantiate a rejection. Based on this conclusion, the case will be issued for allowance.

Section II: Allowable Subject Matter

4. Claims 4, 5,8-15, and 18-20 are allowed.
5. The following is an examiner's statement of reasons for allowance:

While P.J. Stewart's "*Direct Shape Control of Free-Form Curves and Surfaces with Generalized Basis Functions*", Kalra et al., "*Real-Time Animation of Realistic Virtual Humans*", and Nobel et al., "*Direct Manipulation of Surfaces Using NURBS-based Free-Form Deformations*" teaches a method for design of experiments using direct surface manipulation of a mesh model, said method comprising the steps of:

selecting a geometric model, wherein the model is in a computer-aided design (CAD) format; converting the geometric model into a mesh model; evaluating the mesh model using a computer-aided engineering (CAE) analysis; determining whether to continue generating the design of experiments response; modifying a surface of the mesh model by varying a predetermined parameter, wherein the surface is modified using direct surface manipulation (DSM) by defining a sketch plane containing a domain of a DSM feature, positioning the sketch plane relative to the surface of the model, locating a reference center within the domain, specifying a maximum displacement of the DSM feature by locating a reference vector centered at the reference center to define the height of the DSM feature in object space, specifying a basis function to determine a displacement of the vertex, determining a displacement of the vertex relative to the DSM feature using the basis function, and using the displacement of the vertex to modify the surface of the mesh model, the mesh model is updated and the updated mesh model is used in continuing generating the design of experiments response, if determined to continue generating the design of experiments response; and using the results of the CAE analysis for the design of experiments (claim 4); A method for design of experiments using direct surface manipulation of a mesh model, said method comprising the steps of: selecting a base mesh model from an electronic database stored in the memory of the computer system; selecting a DSM feature from an electronic database stored in the memory of the computer system; generating a mesh model using the base mesh model and the selected DSM feature; evaluating the mesh model using a computer-aided engineering (CAE) analysis; determining

whether to continue generating the design of experiments response; modifying a surface of the mesh model by varying a predetermined parameter, wherein the surface is modified using direct surface manipulation (DSM) by defining a sketch plane containing a domain of a DSM feature, positioning the sketch plane relative to the surface of the model, locating a reference center within the domain, specifying a maximum displacement of the DSM feature by locating a reference vector centered at the reference center to define the height of the DSM feature in object space, specifying a basis function to determine a displacement of the vertex, determining a displacement of the vertex relative to the DSM feature using the basis function, and using the displacement of the vertex to modify the surface of the mesh model, the mesh model is updated and the updated mesh model is used in continuing generating the design of experiments response, if determined to continue generating the design of experiments response; and using the results of the CAE analysis for the design of experiments response (claim 14), none of these references, taken either alone or in combination, with the prior art of record disclose

(claims 4 and 14) "a projecting a vertex located on the surface of the mesh model into the domain of the sketch plane"

While none of these references, taken either alone or in combination with the prior art of record disclose a projecting a vertex located on the surface of the mesh model into the domain of the sketch plane, including the domain of a sketch plane,

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in combination with the remaining elements and features of the claimed invention. It is for these reasons that the applicants' invention defines over the prior art of record.

Examiner's Amendment

6. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee. The changes are as follows:

Specification, pg. 14 of 27, paragraph [0052], line 15, element "375" has been changed to -- 300 -- .

Specification, pg. 13 of 27, paragraph [0047], line 2, after "P_i" element -- 530 -- has been added.

Specification, pg. 13 of 27, paragraph [0047], line 3, after "P_i" element -- 530 -- has been added.

Specification, pg. 13 of 27, paragraph [0048], line 2, after "P_i" element -- 530 -- has been added.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance".


Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mr. Tom Stevens whose telephone number is 571-272-3715, Monday-Friday (8:00 am- 4:30 pm EST).

If attempts to reach the examiner by telephone are unsuccessful, please contact examiner's supervisor Mr. Leo Picard ((571) 272-3749). The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Answers to questions regarding access to the Private PAIR system, contact the Electronic Business Center (EBC) (toll-free (866-217-9197)).

February 18, 2006


Paul L. Rodriguez 2/24/06
Primary Examiner
Art Unit 2125

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